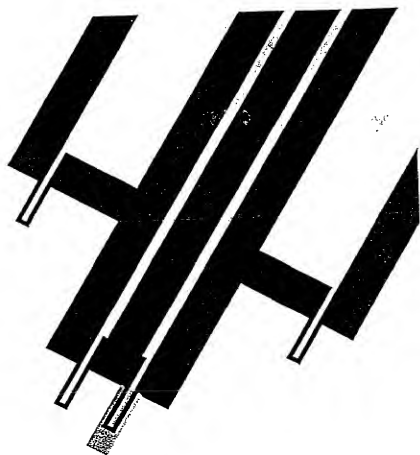
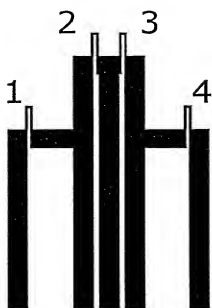
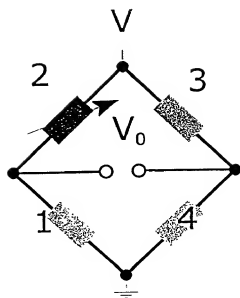
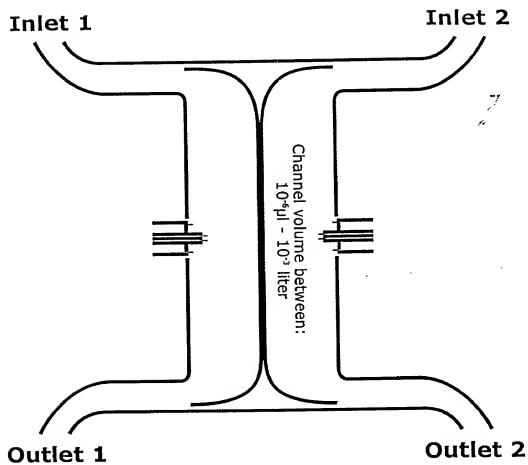


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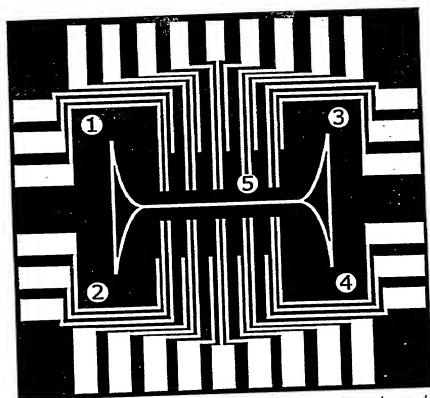






**Flow channel from above**

A.



Micro-cantilever, enlarged

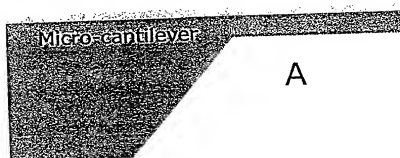
Channel volume between:  
 $10^{-6} \mu\text{l} - 10^{-3}$  liter

B.

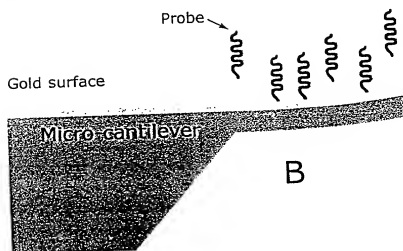


Micro-cantilever, actual size

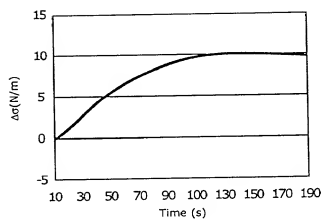
Gold surface



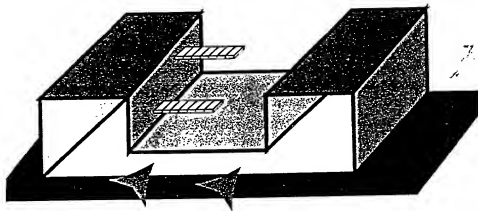
- The oscillating cantilever



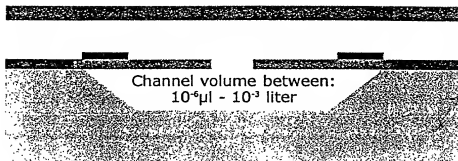
- The oscillating cantilever with attached probe



Channel volume between:  
 $10^{-6}\mu\text{l}$  -  $10^{-3}$  liter



**Flow channel from side in 3D**



## Flow channel cut-through

# Flowchart for mutation detection

## Time

Isolation of genomic DNA

5 min.



Simultaneously PCR,  
cantilever hybridization and  
3' extension

1-2 hours



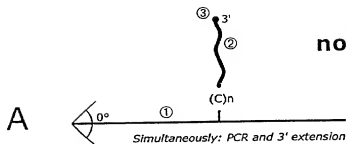
Result

Instantly

1. Normal
2. Heterozygous mutation
3. Homozygous mutation

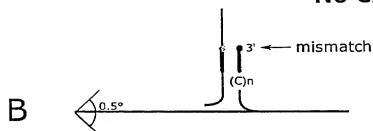
## Start material: DNA

**Normal  
no mutation**

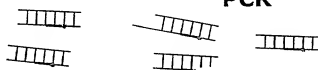


- ● Perfect match
- ● Mismatch

**No extension**

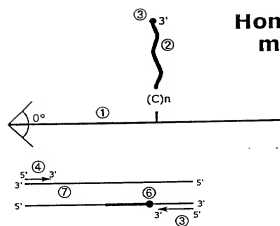


**PCR**



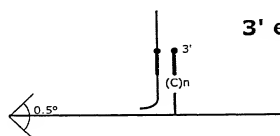
# **Homozygous mutation**

**A**



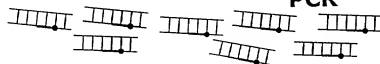
- ● Perfect match
- ● Mismatch

**B**

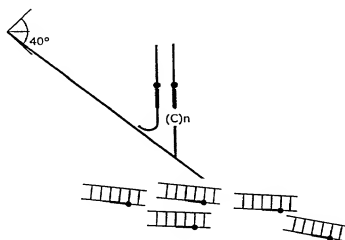


**3' extension**

**PCR**

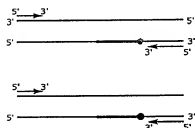
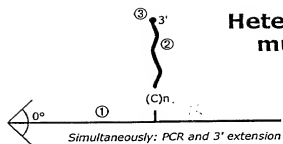


**C**



# Heterozygous mutation

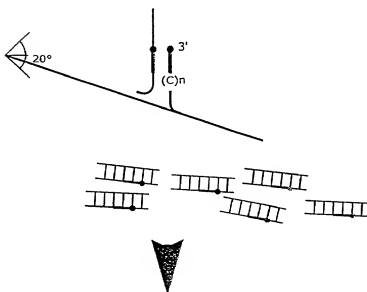
A



● Perfect match

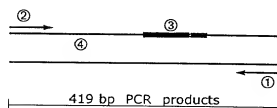
● Mismatch

B



1/2 signal  
compared to  
homozygous mutation

# **Detection of $\Delta 508$ mutation of the Cystic Fibrosis gene**



**Flowchart  
for specific detection  
of RNA molecules**

**Time**

Isolation of RNA

30 min.



Simultaneously RT, PCR,  
cantilever hybridization and  
3'extension

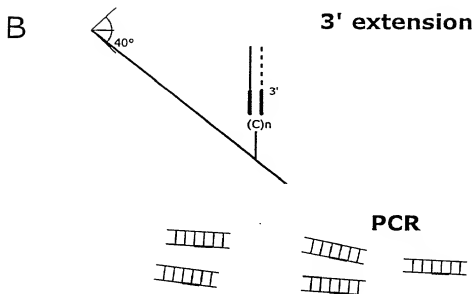
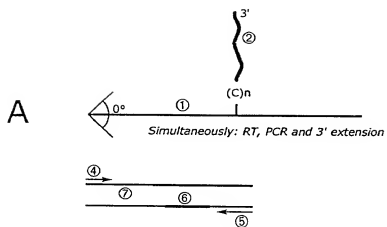
1-2 hours



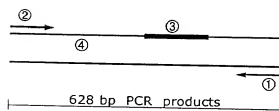
Result

Instantly

## Start material: RNA



## Detection of Interleukin 6 (IL6)



# **Detection of Glyceraldehyde-3-Phosphate- dehydrogenase (GAPD)**

